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# Emotional Experiences and Coping Processes in the Context of Verification of Psychosomatic Hypotheses in MVP Patients

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## Abstract

The research presents the analysis of emotional experiences specific, coping processes and clinical characteristics of MVP patients using the methodological principle of syndrome approach (the Vygotsky-Luria school). We examined 134 MVP patients and 73 healthy subjects. The presented research showed, that MVP patients differs from healthy subjects in having higher sensitivity to frustrating situations, more intense representation of negative emotions, as well as a tendency to suppress the emotional experiences. We found solid evidences to prove the dysfunctions of autonomic nervous system, which are associated with described specific of emotional experiences of MVP patients. These findings suggested that psychological mechanisms of emotional control and regulation are included in pathogenesis of MVP clinical symptoms.

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**Keywords:** Emotional experiences, Coping processes, Mitral valve prolapse, Psychosomatic syndrome, Distressed personality type, Cardialgia

## 1. Problem statement and motivation

The pathogenic role of negative emotions suppression in psychosomatic disorders is considered to be a traditional hypothesis for the psychosomatic field [1].

Modern researchers, following the idea of polygenetic somatic disorders, recognize the association between human emotional experience and somatic disorders genesis, including cardiovascular. However, different scientific schools have various approaches of psychological mechanisms that implement this “psychosomatic connection”. Furthermore, the psychological mechanisms of psychosomatic syndrome’s genesis are still poorly explored [2], [3].

The appeal of Mitral Valve Prolapse (MVP) patients is a challenging clinical model for the verification of psychosomatic hypothesis. Doctors continuously note a considerable dissonance between the numerous subjective complaints of patients and the dramatic scarcity of data from objective medical studies [4], [5]. Some

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authors point at a lack of self-confidence, increased anxiety and liability to depression of MVP patients [5], [6], [7]. Moreover, MVP is not always harmless. Researchers observed the paroxysmal cardiac arrhythmia and some cases of sudden death amongst young people, mainly in stressful situations (both physical and emotional) [6], [8].

In this research we checked the hypothesis of the pathogenic role that negative emotions suppression plays for manifestation of MVP clinical symptoms.

## 2. Research objective

The primary aim of this research was to examine the emotional experiences and coping processes in MVP patients; demonstrate the association between the explored emotional experiences and coping processes with clinical symptoms of MVP.

## 3. Research methods

The main method of presented study was a psychological syndrome analysis (the Vygotsky-Luria school). Techniques for a qualitative and statistical data analysis of clinical-and-psychological follow-up (15 years) were used [9].

The study of emotional experiences employed our modified version of Rosenzweig's method for studying reactions to frustration; this version includes studying the subjective semantics of emotional experience [10], [11]. The examination of coping processes was conducted by «Ways of Coping Questionnaire (WCQ)» [12].

The medical part of the study involved a complex of diagnostic procedures aimed at establishing a diagnosis for each patient and at establishing the degree of intensity of clinical symptoms. An assessment of psychopathological status was conducted by ICD-10 procedure-coding criteria.

Statistical processing of the data was conducted by various methods: calculation of mean values and the average error mean; calculation of the certainty of distinctions between samples (Student t-criterion); exposition of correlations among investigated features in groups of participants (Spearman r-criterion); and the method of factor analysis of variables (the principal-factors method).

## 4. Participants and procedure

This research was conducted in 1993-2011. On the first stage we tested 134 patients aged 18 to 35 (the average age was  $24.8 \pm 1.2$ ) and 73 healthy subjects (the average age was  $27.5 \pm 1.3$ ). 71 MVP patients had an anxiety disorder (AD) symptoms.

On the second stage, after 15 years, the control tests were conducted for 96 patients who had been included in research groups in 1993-1996. 28 patients were diagnosed with AD.

## 5. Results

### 5.1. Results of the study of emotional experience under frustration in MVP patients.

The study of emotional experiences using the modified version of Rosenzweig's method showed, that MVP patients differs from healthy subjects in significantly ( $p < 0.05$ ) greater number of potentially traumatic occasions and significantly greater ( $p < 0.05$ ) number of words (descriptors) which had been chosen for describing their feelings experienced in such situations (Table 1).

Table 1. Mean group in dices for emotive situations and emotional descriptors, suggested by the participants

Index	MVP patients 1 stage, n=134	MVP+AD 1 stage, n=71	MVP patients 2 stage, n=96	MVP+AD 2 stage, n=28	Healthy subjects, n = 73
Total number of chosen situations	7.70±0.41*	8.23±1.13*,^	6.57±0.78*,#	10.20±2.16*	5.36±0.5
Frequency of situation choice (%)	32.08*	34.29*	27.38*,#	42.5*	23.46
Number of selected FS	4.52±0.35*	3.60±0.69*,^	3.45±0.86*,#	5.29±0.55*	2.21±0.42
Frequency selection of FS (%)	28.25*,^,#	22.5*,^	21.56*,#	33.06*	13.81
Number of chosen BS	3.18±1.12#	4.63±1.07	3.12±1.47	4.91±1.23*	3.15±0.75
Frequency selection of BS (%)	39.75#	57.88*	39.0#	61.38*	39.38
Number of descriptors per situation	8.5±1.4*	10.57±1.26*	7.35±1.4#	10.11±2.12*	7.10±1.35

\* Differences are certain when compared to the control (standardized) group ( $p<0.05$ ).

^ Differences are certain when 1<sup>st</sup> stage data compared to 2<sup>nd</sup> stage data of MVP patients examination ( $p<0.05$ )

# Differences are certain when MVP patients without AD compared to MVP patients with AD ( $p<0.05$ )

The psychosemantic analysis of the qualitative characteristics of emotional experiences revealed by the participants in emotive situations demonstrated that for all subjects the description of suggested situations involved a predominance ( $p<0.05$ ) of negative emotions. Meanwhile emotions belonging to the category “distress” were more represented in overall experiences both in patients and healthy subjects (Table 2).

Table 2. Frequency in representation of categorical structures of emotional experience by participants in frustrating situations (%)

Categories of emotional experiences	MVP patients 1 stage, n=134	MVP+AD patients 1 stage, n=71	MVP patients 2 stage, n=96	MVP+AD patients 2 stage, n=28	Healthy subjects, n=73
Joy	0	0	1.2	0	3.1
Anger	26.3*,^	28.9*	18.6#	30.1*	19.0
Shame	9.5	9.1	9.3	10.4	8.6
Contempt	11.1*,#	7.2	10.6*	8.7*	6.1
Fear	17.2*	18.7*	13.2	14.2	11.3
Astonishment	8.1*,^,#	5.2*	16.5#	6.9*	14.8
Sadness	27.8*	30.0	30.6	29.7	37.1
Total number	100	100	100	100	100

\* Differences are certain when compared to the control (standardized) group ( $p<0.05$ ).

^ Differences are certain when 1<sup>st</sup> stage data compared to 2<sup>nd</sup> stage data of MVP patients examination ( $p<0.05$ )

# Differences are certain when MVP patients without AD compared to MVP patients with AD ( $p<0.05$ )

Nevertheless, a few essential divergences may be noted: in categorical structures of emotional experiences MVP patients revealed “fear,” “rage,” and “contempt” with a higher ( $p<0.05$ ) frequency; while the category of “anguish” appeared with a lower ( $p<0.05$ ) frequency (Table 2).

MVP patients are certain ( $p<0.05$ ) to more frequently reveal extrapunitive reactions ( $E = 52.9\%$ ), and self-defense reactions ( $ED = 55.6\%$ ). They dramatized the generic stressful character of the situation, making some external reason for frustration the culprit and directing ill feelings toward somebody or something in the immediate vicinity. Impunity (M-directed reactions) was of no less frequency ( $M = 31.1\%$ ), patients were prone to describe the situation as being deprived of stress pressures. The numbers of chosen emotional descriptors were maximal for M-type answers.

Nonverbalized reactions of the patients (when asked to describe what they would think about in a situation of frustration) revealed even more explicit extrapunitive reactions ( $E = 60.5\%$ ), with a focus on self-defense ( $ED = 60.8\%$ ); these reactions distinguish them from healthy participants ( $p < 0.05$ ). Intropunitive reactions (when a patient admits his/her blame or assumes responsibility for negotiating the situation) appear with no less frequency ( $I = 31.2$ ). NP-type reactions in MVP patients were significantly ( $p < 0.05$ ) less represented than in healthy subjects, both verbalized and nonverbalized (24.2% and 23.35% in MVP patients; 40.8% and 42.9% in healthy subjects correspondingly).

The analysis of data collection suggested that MVP patients differs from healthy subjects by more frequent choice of frustrating situations and more intense negative emotional experiences as well as liability to suppress the negative emotions. The most typical way for MVP patients for coping frustrations is to blame others and even act aggressively in some cases. Notable, that mentioned patterns are more distinct specifically in blaming situations, which considered as the most traumatic ones.

The described characteristics of emotional experiences of MVP patients are significantly ( $p < 0.05$ ) more intense in MVP patients with AD symptoms (Table 1-2).

The reexamination of MVP patients after 15 years showed that detected characteristics of emotional experiences under frustration are quite stable (Tables 1-2).

Moreover, high sensitivity to emotionally intense situations revealed a significant increasing tendency amongst MVP patients with AD symptoms who didn't take medical and psychotherapy treatment: numbers of selected BS, FS, and caused emotions were growing over time (Table 1-2).

### *5.2. Results of the study of coping processes in MVP patients.*

The results of coping strategies analysis by WCQ showed, that MVP patients during first test applied for the coping strategy called "escape-avoidance" ( $59.7 \pm 3.4$  scores, rank meaning 1), "dissociating" ( $56.9 \pm 4.2$  scores), "confrontation" ( $54.8 \pm 2.3$  scores) and "searching for social assistance" ( $53.7 \pm 3.9$  scores) which they commonly used in difficult live situations. Usage frequency of these coping strategies is significantly ( $p < 0.05$ ) higher than in control group. Strategy "positive revaluation" is used significantly ( $p < 0.05$ ) rarely.

The reexamination (after 15 years) showed that strategy "self-control" of MVP patients stands on the first rank position having  $58.2 \pm 4.3$  scores. However, the second and third rank positions are still taken by "escape-avoidance" ( $53.4 \pm 5.25$  scores) and "confrontation" ( $50.7 \pm 4.9$  scores) strategies. This significantly ( $p < 0.05$ ) distinguishes MVP patients from control group.

### *5.3. Results of the study of MVP clinical picture.*

The examination of MVP clinical picture illustrated the highest representation of dysfunction of sympathetic and parasympathetic nervous systems as well as vascular and anxiety disorders (AD) within MVP. MVP patients significantly ( $p < 0.05$ ) distinguish from healthy subjects in terms of representation of 22 analyzed clinical symptoms and syndromes. The most intense characteristics in MVP picture are as follows: subjective feelings of cardiac rhythm disorder, cardialgia, headache tension syndrome, migraine, neurogenic hyperventilation syndrome, thermoregulation disorder, panic disorder and syncopal states. According to daily monitoring of blood pressure and electrocardiogram, MVP patients significantly ( $p < 0.05$ ) more often have tachycardia in day time, liability of pulse and blood pressure.

After 15 years we explored the reduction of clinical symptoms in MVP patients with AD who attended psychotherapy and took medical treatment.

#### 5.4. Comparative analysis of clinical-psychological study results in MVP patients.

The factor and qualitative analysis (the syndrome analysis principle by Vygotsky-Luria) of all data collected demonstrated the association between emotional experiences characteristics and clinical symptoms of MVP in MVP patients. This association was statistically proven.

As a result of factor analysis we identified 4 statistically significant factors, that explain 52,47% of variance and link analyzed clinical and psychological characteristics. These factors are as follows: 1) factor of clinical-psychological interactions; 2) factor describing emotional experience characteristics in emotiogenic situations; 3) factor describing coping strategies in traumatic situations; 4) factor of emotional disorganization of behavior/emotional control.

The analysis of this factor structure suggested that MVP patients have a quite stable and comprehensive complex of clinical and psychological characteristics that can be defined as a psychosomatic syndrome. The results of qualitative and statistical analysis proved that the most important syndrome-establishment factor (radical) is a specific emotionality and disorder of emotional control in MVP patients (excessive emotional repression with insufficient reflection of emotional experiences).

The reexamination (after 15 years) of the patients demonstrated that the psychosomatic syndrome has a stable structure, despite either positive or negative dynamics in the patient's state. This leads to its prognostic possibilities: the patients assigned to the "risk group" for plausible symptomatology complications in the clinical and psychological signs described above, as well as the whole complex of clinical and psychological features, confirmed our hypothesis of the "hardening" of clinical MVP manifestations under conditions of emotional pressure when medication and psychological aid were not provided. Meanwhile, psychologically "safe" patients displayed generally positive dynamics and a reduction of MVP signs in a number of cases.

## 6. Conclusions

The presented research showed, that MVP patients differs from healthy subjects by higher sensitivity to frustrating situations, more intense representation of negative emotions, as well as a tendency to suppress the emotional experiences. Such a complex of emotional characteristics fairly often goes to the focus of psychological researches due to the interest of describing the «Distressed personality type» [13].

The presence of these described characteristics potentially leads to emotional tension in MVP patients in daily life situations, which considered as a potentially traumatic. We found solid evidences describing the specific of emotional experiences and emotional control of MVP patients to prove the dysfunction of autonomic nervous system in them. These findings suggested that psychological mechanisms of emotional control and regulation are included in pathogenesis of MVP clinical symptoms. This argues that psychodiagnostics and psychotherapy are required for clinical work with MVP patients.

Delivered results of this research enlarge the scientific horizons of MVP nature. Our findings could be considered as evidence to prove the classical psychosomatic hypothesis of the pathogenic role that negative emotions suppression plays for manifestation of psychosomatic disorders.

In our opinion, these results also emphasize the need to discuss methodological issues of clinical psychology on the modern stage of its development, when there are more and more possibilities for cross-disciplinary studies and advanced technologies for psychological researches [9, 14, 15, 16, 17, 18].

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